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Filed : October 31, 2000

#### REMARKS

Claims 1-9, 12-21 were pending in the application. Various claim amendments were made to make clerical corrections to put the claims in condition for allowance. Therefore, Claims 1-9, 12-21 are presented for examination herein.

#### *Response to Double Patenting Rejection*

Two terminal disclaimers are filed herewith to obviate the two double patenting rejections.

#### *Response to 112 Rejection*

#### *II. 112 Rejection*

The examiner asserts the wherein clauses below were not in the grasp of the inventor at the time the application was filed:

"wherein each document in the returned set of documents includes content as defined by the first parameter and is guaranteed to be a member of the linked set of documents as defined by the second parameter; and

wherein the first parameter is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents."

Applicant asserts that these limitations are met by some if not all of the exemplary embodiments discussed in the application, so the Applicant clearly had this subject matter in his grasp. In some cases, limiting the search to a specified subset of web space is explicit. A key type of disclosed embodiment searches over pages of search results, areas of web sites, areas restricted to particular domains, and the like.

Below is an example from page 12 of the application showing an embodiment where the limitations in question are explicit:

"Each listed "hit" corresponds to web page title or content-summary information and a hyperlink to a web site. In this example the search engine returned a lot of "junk," i.e., pages that do not even contain the keywords specified in the initial search. The user then specifies via the multilevel search interface 235 a "one-level search" with a "next-

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to-end" and a keyword. The "one level search" means to check each hyperlink referenced in the results page for the keyword, but not to check any further. That is, no hyperlinks on any pages referenced from the results page will be accessed. The "next-to-end" parameter instructs the browser to follow the "next" link all the way to the end. Recall that the search engine returns 20 results per page and the user needs to click the "next" hyperlink at the bottom of the page to get to the next 20 results."

In the example above, the search engine returned too many results to begin with. The invention is performing the exact opposite of re-inserting the search string into more search engines, but is instead carrying out a filtering operation to weed out irrelevant web pages that were already returned from another search engine. This example explicitly teaches to only search along the "next hyperlink" and nothing more, i.e., to include no re-inserting the search string into embedded search engines, because that would completely defeat the purpose of this embodiment, which is to weed out irrelevant results as opposed to seeking more results. This embodiment explicitly teaches "to check each hyperlink referenced in the results page for the keyword, but not to check any further". From this example and many other examples, it is clear that various benefits of the Applicant's invention would be rendered inoperative if the limitations in question were violated. Therefore it is clear from the originally filed application that the inventor was in full grasp of the subject matter being claimed.

Page 14 shows another explicit example: "The "max domain" setting instructs the markup language processor 235 to keep searching without a specified depth, but not to follow any hyperlinks leading out of a given domain. This is useful for searching an entire web site. An optional "local limit" button 325 may be used to allow the user to set the "number of levels" parameter to max, while limiting the search to a local network domain." Again, this search embodiment only follows hyperlinks and specifically limits links that lead outside of a specified domain. In this exemplary embodiment, as in most or all other embodiments, the search string is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents. The claim language merely claims what was described in the written description of the original patent specification.

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*Response to Claim Rejections – 35 USC 103*

The Examiner appears to have made a mistake at the beginning of the 103 rejection section because the rejection is actually made by combining Liddy (US6,304,864) with Adams (6,334,145) and also with Li (US 6,631,496). Hence Applicant notes that three references are being combined as opposed to the two stated at the beginning of the rejection. That is, to clarify the record, and to make this case more ready for appeal, Applicant notes that the claims were rejected by Examiner over Liddy in view of both Li (US 6,631,496) and Adams (6,334,145).

The Examiner explicitly combines Liddy with Li on page four of the Office Action. The Examiner states the reason to combine Li with Liddy is "Motivation of combining is for confining the search the domain of interest." Yet Liddy at Col. 10, line 31 teaches away from such a combination when he states: "No restrictions need be placed on the number of levels of linked documents from the document at the first Web address." It is improper for the Examiner to assert that the motivation to combine is something that is explicitly disavowed by the primary reference. This clear and explicit teaching away by Liddy of the proposed combination renders the combination improper.

The combination of Liddy and Li is improper, but if, arguendo, they are combined anyway, the combination still does not result in the Applicant's invention as claimed. The Examiner specifically sights to Li 8:32-60. So to put this in better context, we examine Li 26-60 below:

"Crawling can be seen as a "batch" mode of collecting Web documents, which allows a user to collect a number of documents. In PowerBookmarks, crawling is accomplished by using Internet search engines. FIG. 5 shows a specification window in query interface 200 for specifying a crawling request." (Li at 8:26-31)

"Crawling is achieved in PowerBookmarks by a number of steps. First, PowerBookmarks obtains one or more seed URLs. As shown at screen portion 501 of FIG. 5, a user can specify a set of criteria which identify the seed URLs. The criteria include title, URL, keywords, anchors, and publication date (i.e. last modified date). Based on these specified criteria, PowerBookmarks generates queries and forwards them to one or more web search engines. URLs meeting the specified criteria are then

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returned by the web search engines. These URLs are seed URLs for the crawling." (Li at 8:32:41).

Second, PowerBookmarks traverses the links of the seed URLs. Screen portion 502 of FIG. 5 allows a user to specify one or more traversal strategies. Specifically, in PowerBookmarks, the crawling strategies include traversing a specified number of levels of links pointing to the documents of the seed URLs, and traversing a specified number of levels of links pointed to by the documents of the seed URLs. The crawling can also be restricted traversal of no more than a specified number of URLs. To traverse links pointed to by documents of the seed URLs, the documents of the seed URLs are downloaded and parsed. Internet search engines are queried for the documents which points to the seed URLs. If the number of levels for link traversal is greater than 1, the URLs of documents downloaded in each level of links are used as seed URLs for the next level of links to be traversed. This procedure is applied until the specified number of levels of links is traversed. The user can also confine the crawling to within the same domain as the seed URLs, or a specified domain." (Li at 8:42:60).

While Li teaches that web crawling can be limited to a domain or a subset of hyperlinks, Li teaches that the search criterion keywords (first parameter) is to be inserted into one or more search engines and used to find seed URLs for subsequent web crawling. See Li at FIG. 6 and the discussion thereof at Li 8:63 to 9: 10:13. Instead of using the search string to evaluate documents found along the way in a multilevel search, the search string is instead plugged into a search engine to identify a set of seed URLs to begin web crawling to generate larger lists of documents. Web crawling is then carried out without checking each "crawled" page for the search string.

This teaching teaches away from Applicant's invention as claimed herein. The Applicant's invention deals with crawling through pre-defined sets of links and checking each hyperlinked document to see whether it meets the first parameter. Li instead inserts the first parameter into one or more search engines uses to find the seed URLs for use in subsequent web crawling. Li teaches away from the Applicant's invention and would lead one of ordinary skill in the art to develop different types of web crawling systems

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that would be completely inoperable at achieving the results of the Applicants invention, as claimed herein.

Liddy teaches to use the keyword string and to re-insert it in one or more search engines to extend a search as broadly as possible. See Liddy ('864) at FIG. 2A, especially the three arrows leading from block 38 to meta-search engine blocks 40 and 42 and to the web crawling block 44. Hence we see Liddy alone would plug the search criterion into other search engines (40, 42) and extend the search as wide as possible. (Liddy:3:7-12 "it is the principal object of the present invention to ... integrat[e] both meta-searching and crawler agents.") Li, as discussed above, takes the same "first parameter" (e.g., search string) and plugs it into one or more search engines to locate "seed URLs" to be used as starting points for web crawling.

If Li were combined with Liddy, the content based search string would be plugged into one or more search engines and used to return "seed URLs" to begin web crawling. These "seed URLs" could only find use at block 44 of Liddy in FIG. 2A. That is, the combination of Liddy and Li could only take the search string, pass it to search engines in blocks 40 and 42 (Liddy FIG. 2A), and additionally modify block 44 to ALSO PLUG THE SEARCH STRING INTO YET ANOTHER SEARCH ENGINE in order to find the "seed URLs" to start the web crawler(s). As discussed in Liddy at 9:49-10:65, a leader agent would load the crawlers up with the query and let them run. So the combination of Li and Liddy would NOT result in the Applicants invention, but would merely modify FIG. 2A of Liddy by adding a new search engine into the front of block 44, so that all three paths instead of two leading out of block 38 would lead to search engines.

The combination of Li and Liddy would NOT be one that (e.g., as per Applicant's Claim 1 and as per all of the preferred embodiments of the Applicants invention as written in the Applicant's specification):

"orchestrates a multilevel search to cause the documents in the linked set of documents to be analyzed to determine whether they match the content based search string, and to couple back to the client-side software module a returned set of documents;

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wherein each document in the returned set of documents includes content as defined by the first parameter and is guaranteed to be a member of the linked set of documents as defined by the second parameter; and

wherein the first parameter is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents."

While the Examiner sought to combine Li with Liddy because Li teaches that the crawling can be limited, even though Liddy expressly teaches that crawling need not be limited, we see that the resulting combination adds another layer of search engines to the process and actually forms a combination that is still further away from the Applicant's invention and is still more inoperable when it comes to meeting the Applicant's claims than Liddy alone. When Liddy and Li are combined, a system results that does not meet the claim limitations of the Applicant's claims, and cannot achieve the desired results of the Applicant's invention.

The Examiner next goes on to additionally combine the above combination of Liddy (US 6,304,864) and Li (US 6,631,496) with Adams (6,334,145) to form the final combination used to reject the Applicant's claims by 35 USC 103. Applicant respectfully submits that (i) the combination of Liddy and Li is itself an improper combination and could never result in a system that be combined to form the Applicants invention, as discussed above, (ii) Liddy also specifically teaches away from a combination with Adams, so that without the hindsight of the Applicant's invention, there would be no motivation for such a combination, and (iii) that once such a combination is made, the Applicant's invention does not result, but rather a combination results that cannot perform the Applicant's invention as claimed.

Adams does not teach the concept of performing a multilevel linked search over a set of documents, but only defines how to step through and retrieve a linked set of documents.

Liddy teaches away from a combination of Liddy and Adams to obtain the Applicant's claimed invention. Liddy expressly teaches away from highly constrained and limited searches. Liddy teaches to cast a search net as wide as possible to find results

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that might not be reachable from a particular search engine. By sending out agents to both perform web crawling and to plug parameters into search engines, a very expansive and broad web search can be performed to find otherwise difficult to find results.

Liddy states (Col. 1):

#### FIELD OF THE INVENTION

"The present invention relates to a system (and method) for retrieving multimedia information from a computer-based network, such as the Internet, using multiple evolving intelligent agents, and relates particularly to a system for retrieving information, in terms of documents or Web pages, at network addresses using agents for crawling through the Internet and executing searches on search engines on the Internet to retrieve documents, in accordance with a user inputted query. The system is suitable for a user at a computer coupled to the Internet to automatically retrieve Web pages from the Internet in accordance with a natural language query."

Liddy: Col. 3:5-12:

#### SUMMARY OF THE INVENTION

"Accordingly, it is the principal object of the present invention to provide a system for retrieving information from the Internet, and particularly the WWW, using multiple intelligent agents, which can more efficiently retrieve document than prior art Web agent systems by integrating both meta-searching and crawler agents."

Liddy Col. 3:40 to 4:20: (also in: "Summary of the Invention")

"Briefly described, the present invention embodies a system for retrieving information on a computer coupled to a computer-based network, such as the Internet, in accordance with a query. (...) The system further includes an agent server for producing multiple crawler agents and meta-search agents under an agent leader associated with the user profile. (...) Each crawler agent retrieves documents from the network at a different starting network address and at other addresses linked from the document at the starting network address, and so on. Each meta-search agent executes a search on different search engines addressable on the network in accordance with the

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query to retrieve documents at network addresses provided by the search engine. (...) During the search, when each of the crawler or meta-search agents retrieves a document, (...)”.

Liddy at Col. 10, line 31 states: **“No restrictions need be placed on the number of levels of linked documents from the document at the first Web address. If any crawler agent locates multiple link addresses in a document, the address is temporarily stored in a queue in memory 19 until the same of another crawler agent is available to retrieve a document from the WWW associated with that address.”**

Liddy at Col. 10, line states: **“The agent leader can reuse existing crawler agents which have stopped crawling due to all addresses linked to their stating address have been retrieved.”**

Liddy teaches in an opposite direction away from the current invention. One of ordinary skill in the art, without the hindsight of the present invention disclosure, would not have been motivated to combine Liddy with Adams. This is because Liddy expressly stated there is no need to do this, and also because doing so would violate the purpose of Liddy which is to search in as many areas as possible to locate all documents, to include hard-to-find documents, and to filter the set of all found documents using a neural network based filtering algorithm. But more importantly, Liddy mixes crawler agents with meta agents to insert the search string into additional search engines and to thereby prohibit any resulting combination form providing a set of search results guaranteed to be limited to a linked set of documents, as claimed by Applicant.

Liddy states as a **principal object of her invention** is “to provide a system for retrieving information (...) **by integrating both meta-searching and crawler agents.**”

As such, there is no motivation to combine Liddy with Adams to obtain the applicant's invention because Liddy teaches away from any such combination. Liddy is interested casting a net as broadly as possible to dig out hard to find information. The present invention focuses on systems and methods to enable a user to drill down deeper by searching over a well defined limited volume of web space as referenced from a current web page of interest.

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Now suppose, arguendo, that the combination of Liddy and Li were further combined with Adams. Then the combination would not satisfy especially limitations such as:

"orchestrates a multilevel search to cause the documents in the linked set of documents to be analyzed to determine whether they match the content based search string, and to couple back to the client-side software module a returned set of documents;

wherein each document in the returned set of documents includes content as defined by the first parameter and is guaranteed to be a member of the linked set of documents as defined by the second parameter; and

wherein the first parameter is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents.

This is because any combination of Liddy and Li with Adams would both cover a multilevel search and would integrate this with a search engine search and necessarily obtain documents outside of the search definition as defined by Applicants invention. As discussed above, the combination of Liddy and Li would modify block 44 in FIG. 2A of Liddy by adding a search engine to find the seed URLs to use in subsequent web crawling. The blocks 40 and 42 would remain in the combination. When Adams is further combined, the block 44 would further be modified to include the hyperlink search specification of Adams. However, the system would still not meet the claims of the Applicant's invention. The combination would still include blocks 40, 42, and a block 44 that was modified to further include a search engine to find the "seed URLs" used in subsequent web crawling. Therefore, the resulting combination would never be able to achieve the results of the Applicant's invention and would never be able to meet the claim limitations, even if combined with still more references. Even if Li were dropped from the combination, blocks 40 and 42 would remain, and Liddy's principal object of his invention would need to still be met, so that the search string would necessarily be plugged into one or more search engines to extend the search out and be rendered inoperative at producing the results of the Applicant's claimed invention.

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Because none of the combinations are proper and none of the combinations meet the claim elements of the Applicant's claims, and because none of the combinations can produce the same results as the claimed invention, Applicant submits that the claims are in condition for allowance.

*Other 103 rejections and Official Notice*

Applicant traverses Official notice with respect to Claim 5. Site maps were known, but the concept of forming site maps and related site map type descriptions of hyperlinked volumes of web space in the context of Claims 1, 5 was unknown.

Applicant traverses the rejection of Claim 7. The Examiner has not shown any reference that performs web based searching based on file name extensions. For example, in google.com, there is no efficient and explicit way to search for documents having a ".ppt" file extension. This is lacking in the art and the Examiner has not provided a prima facie basis for rejection.

Examiner states that a neuron network inherently includes using a position-dependent search parameter. This is not correct. See the neural network literature. There are countless journal articles and entire books written about neural networks that never once mention the possibility of using a position parameter in a neural network. While it might be possible to do it, there is nothing at all inherent, i.e., it is completely technically incorrect to assert that "all neural networks must inherently use a position parameter indicative of the geographic positioning of a computer." Therefore Applicant traverses this rejection.

As to claim 16, there is no teaching in any reference to treat the "next linked page" to traverse linked sets of search results pages. This is a special type of search, and to just say that because this special type of hyperlink is a hyperlink, and the references teach hyperlinks, that the references teach this special use of this special type of hyperlink. Instead, all of the art of record is completely silent on this point.

Finally there examiner says that Claims 17 and 18 are "inherently included" in Internet searching... Applicant traverses this rejection and asks the Examiner to provide

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specific citations showing how claims 17 and 18 are anticipated or rendered obvious by the prior art.

*Summary*

Claims 1-9, 12-21 were presented for examination herein. Applicant respectfully submits that none of the combinations are proper. Because none of the combinations meet the claim elements of the Applicant's claims and none of the combinations can produce the same results as the claimed invention, Applicant respectfully submits that the claims are in condition for allowance. Applicant respectfully requests the Examiner to issue a notice of allowance for all pending claims.

Applicant notes that any amendments or claim cancellations made herein and not substantively discussed above are made solely for the purposes of more clearly and particularly describing and claiming the invention, and not for purposes of overcoming art. The Examiner should infer no (i) adoption of a position with respect to patentability, (ii) change in the Applicant's position with respect to any claim or subject matter of the invention, or (iii) acquiescence in any way to any position taken by the Examiner, based on such amendments or cancellations not substantively discussed.

Furthermore, any remarks made herein with respect to a given claim or amendment are intended only in the context of that specific claim or amendment, and should not be applied to other claims, amendments, or aspects of Applicant's invention.

Applicant specifically reserves the right to prosecute claims of differing and broader scope than those presented herein in a continuation application.

Lastly, Applicant notes that any amendments made by this paper which are not specifically discussed herein are made solely for the purpose of more clearly and particularly pointing out and claiming Applicant's invention.

If the Examiner has any questions or comments which may be resolved over the telephone, he is requested to call the undersigned at (305) 735-8533, fax a message at 305-437-7670, or send an email to dsperic@aol.com.

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